

ARI Research Note 90-94

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AD-A226 943

# Signaling the Onset of Nightmares

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for

Contracting Officer's Representative  
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Basic Research  
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August 1990

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**United States Army**  
**Research Institute for the Behavioral and Social Sciences**

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University of Haifa

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UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

## REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS ---		
2a. SECURITY CLASSIFICATION AUTHORITY ---			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE ---					
4. PERFORMING ORGANIZATION REPORT NUMBER(S) ---			5. MONITORING ORGANIZATION REPORT NUMBER(S) ARI Research Note 90-94		
6a. NAME OF PERFORMING ORGANIZATION University of Haifa		6b. OFFICE SYMBOL (If applicable) ---		7a. NAME OF MONITORING ORGANIZATION U.S. Army Research Institute	
6c. ADDRESS (City, State, and ZIP Code) 99-43 65 Avenue Rego Park New York, NY 11374			7b. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION U.S. Army Research Institute for the Behavioral and Social Sciences		8b. OFFICE SYMBOL (If applicable) PERI-BR		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER DAJA45-87-M-0406	
8c. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600			10. SOURCE OF FUNDING NUMBERS		
			PROGRAM ELEMENT NO. 61102B	PROJECT NO. 74F	TASK NO. N/A
			WORK UNIT ACCESSION NO. N/A		
11. TITLE (Include Security Classification) Signaling the Onset of Nightmares					
12. PERSONAL AUTHOR(S) Breznitz, Shlomo					
13a. TYPE OF REPORT Final		13b. TIME COVERED FROM 87/01 TO 87/12		14. DATE OF REPORT (Year, Month, Day) 1990, August	
15. PAGE COUNT 6					
16. SUPPLEMENTARY NOTATION Contracting Officer's Representative, Milton Katz					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP	Stress, Laboratory		
			Anxiety,		
			Performance. (ICR) E		
19. ABSTRACT (Continue on reverse if necessary and identify by block number) → This study investigates changes induced by the autonomic nervous system that are associated with the onset of nightmares. The study reveals that subjects reporting nightmares fail to reproduce them in the experimental setting. It is suggested that a more systematic investigation using a broader range of subjects and procedures might increase the ecological validity between "real life" and the laboratory setting. Thus, the possibility of autonomic nervous system indices signaling the onset of nightmares remains a possibility.					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL Michael Kaplan			22b. TELEPHONE (Include Area Code) (202) 274-8722		22c. OFFICE SYMBOL PERI-BR

## SIGNALING THE ONSET OF NIGHTMARES

### Scientific aims of the study

Sleep disturbances may cause performance degradation during the following day. The prevalence of disturbed sleep patterns due to nightmares and related phenomena is significantly augmented by high levels of stress and particularly during and following combat experiences. The main aim of this study was to search for a warning signal which may signify the onset of a nightmare. On the basis of available knowledge, it was assumed that a major increase in heart rate would be a possible warning signal. Thus, this pilot study attempted to demonstrate the availability of reliable autonomic nervous system changes associated with the onset of nightmares. If such an early indicator could be found, this will open this area to a wide variety of possible interventions, with the aim of reducing sleep disturbances. Thus, for instance, a relatively simple device could activate an alarm that will cause the early awakening of the subject, thus minimizing the duration and possibly the psychological impact of a nightmare.

### Method and subjects

In order to test for the availability of markers indicating the onset of major emotional arousal during sleep, we have secured the collaboration of the Sleep Laboratories of the Technion, under the supervision of Dr. Peretz Lavie. This laboratory has several ongoing projects which provide a variety of subjects with sleep disturbances.



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The specific request from Dr. Lavie was to monitor his subjects and the occurrence of nightmares.

#### Results and discussion

As indicated in the interim report, our main obstacle in conducting this study was the unavailability of subjects. Even those who complain of recurring nightmares, when tested in the laboratory, did not report having them. It is conceivable that the protected environment of the Sleep Laboratory and a person's knowledge that he or she is being closely watched, short-circuit the full development of a process which under regular home conditions may culminate in a full nightmare.

This finding, not unlike the "Heisenberg principle" in physics, precludes any systematic investigation of early warning signals. In other words, the very fact of measurement changes the phenomena being measured.

Being a pre-test, ours was not an exhaustive attempt to search for nightmares in the laboratory, and ought to be taken with caution. At the same time, however, it appears that by inviting the subjects to the laboratory, the probability of actually experiencing a nightmare is significantly reduced. It is, of course, possible that subjects do have negative dreams, with reduced intensity of the emotional experience, and consequently they are not reported as nightmares. Even if such is the case, the basic intervention of participating in an experiment leads to

essentially the same results, namely either eliminating nightmares or seriously reducing their intensity.

Thus, while our study failed to look into the question originally proposed, it is not without an interesting lesson. More systematic investigations along similar lines utilizing a broader range of possible subjects may yield to further corroboration of these initial results. Needless to say, if this phenomenon turns out to be reliable, it has important implications to both the theory of trauma and post-traumatic stress disorders, as well as to the understanding of nightmares as such. It may also provide the background for possible interventions with the aim of reducing the deleterious effects of recurring sleep disturbances related to combat experiences.

The issue of early warning signals remains, thus, basically unresolved, and it is conceivable that by recruiting the collaboration of subjects suffering from recurring nightmares on long-term basis, this question may yet turn out to be adequately researchable. Thus, subjects may take the recording equipment to their home situation on a regular basis, thus, perhaps, overcoming the inhibiting factors of the unique experience of sleeping in the laboratory.